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=> file reg
FILE 'REGISTRY' ENTERED AT 13:39:22 ON 05 AUG 2003
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=> d his


     FILE 'LREGISTRY' ENTERED AT 12:48:27 ON 05 AUG 2003
L1                STR
L2                STR

     FILE 'REGISTRY' ENTERED AT 12:52:01 ON 05 AUG 2003
L3                SCR 2043
L4              3 S L1 AND L2 AND L3
L5                SCR 1968
L6              0 S L1 AND L2 AND L3 AND L5

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L7          17735 S LEE C?/AU
L8         262556 S DIELEC?
L9          45095 S FLUORINAT? OR PERFLUORINAT?
L10            11 S L7 AND L8 AND L9
                  SEL L10 1-11 RN

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L11            51 S E1-E51
L12            21 S L11 AND PMS/CI
L13            20 S L12 AND F/ELS

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L14             4 S L1
L15          4277 S 191.7.16/RID
L16             0 S L13 AND L15

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L17               STR

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L19           296 S L1 AND L17 AND L3 FUL
                  SAV L19 ZAC198/A
L20            37 S L19 AND F/ELS
L21           214 S L19 NOT 2<NC
L22            37 S L19 AND 2/NRS
L23             0 S L20 AND L21 AND L22

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L24             0 S L20
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(nothing basically)

FILE 'ZCAPLUS' ENTERED AT 13:29:36 ON 05 AUG 2003
L25 35 S L20
L26 8 S L25 AND L8

FILE 'REGISTRY' ENTERED AT 13:39:22 ON 05 AUG 2003

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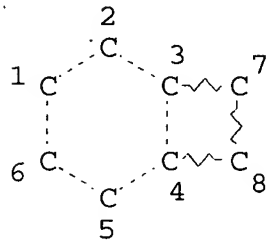

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DEFAULT ECLEVEL IS LIMITED

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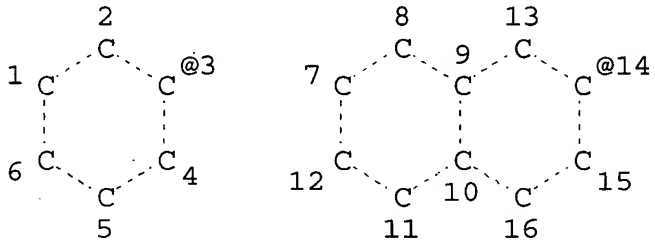
STEREO ATTRIBUTES: NONE
L3 SCR 2043
L17 STR

G1 19



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DEFAULT ECLEVEL IS LIMITED

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NUMBER OF NODES IS 17

STEREO ATTRIBUTES: NONE
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100.0% PROCESSED 105383 ITERATIONS 296 ANSWERS

SEARCH TIME: 00.00.02

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FILE 'ZCAPLUS' ENTERED AT 13:39:39 ON 05 AUG 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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=> d l26 1-8 cbib abs hitstr hitind

L26 ANSWER 1 OF 8 ZCAPLUS COPYRIGHT 2003 ACS on STN
2003:349523 Document No. 138:354926 Electrically insulating films, materials and coating varnishes for them, and semiconductor devices. Oki, Hiromi; Nakashima, Michio; Hase, Yoko; Izumi, Atsushi (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003128990 A2 20030508, 25 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-331959 20011030.

AB Elec. insulating films, useful as interlayer **dielec**. films for multilayer wiring boards or surface protective layers for semiconductors, have fine pores and comprise resin layers mainly comprising polybenzoxazole structures, prepd. by thermal condensation and crosslinking reactions of materials or varnishes contg. film-forming polyamide copolymers prepd. by reaction of polyamides [NHX(OH)2NHCOYCO]m[NHX(OH)2NHCOZCO]n [R1-R4 = H, monovalent org. group; X = arom. ring-contg. tetravalent group; Y = divalent group; Z = divalent group (structures of X, Y, and Z are given); m >0; n .gtoreq.0; 2 .ltoreq. m + n .ltoreq. 1000; 0.05 .ltoreq. m/(m + n) .ltoreq. 1] having branched structures prepd. from bisaminophenols and polybasic carboxylic acids, with reactive oligomers having substituents reactive towards carboxyl, amino, or OH groups in the polyamide structures. Thus, 2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane 35.9, trimesic acid trichloride 0.53, and 4-ethynyl-2,6-naphthalenedicarboxylic acid dichloride 27.7 g were polymd. in N-methyl-2-pyrrolidone (NMP), the reaction mixt. was mixed with Et3N, and stirred with a .gamma.-butyrolactone soln. contg. 4-aminobenzoate ester-terminated styrene oligomer (Mn 9600; prepn. given) to give a copolymer contg. 37% reactive oligomer units, which was dissolved in NMP, applied on an Al-deposited Si wafer, dried at 120.degree. for 240 s, heated at 300.degree. for 60 min under N to form a film of a polybenzoxazole having styrene oligomer units at the terminals, and heated at 400.degree. for 60 min for decompn. of the oligomer units to form a polybenzoxazole film having .ltoreq.15-nm pores, **dielec**. const. (at 1 MHz) 2.1, heat resistance 563.degree., Tg >450.degree., and water absorption 0.2%. An electrode pattern was formed on the polybenzoxazole film by vapor deposition of Al.

IT **519142-93-9P**
(thermally decompd., polybenzoxazole; elec. insulating polybenzoxazole films having fine pores prepd. by heating of

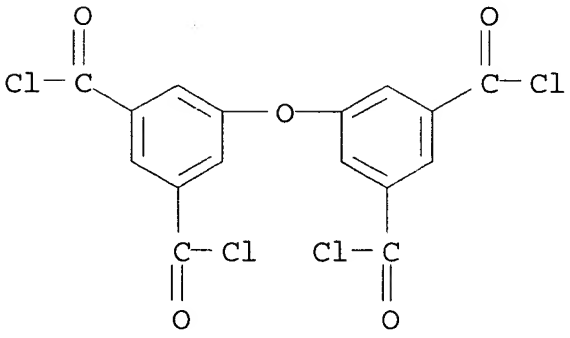
copolymers from branched polyamides and reactive oligomers for semiconductor devices)

RN 519142-93-9 ZCAPLUS

CN 2,7-Biphenylenedicarbonyl dichloride, polymer with .alpha.-(2-aminopropyl)-.omega.-(2-aminopropoxy)poly[oxy(methyl-1,2-ethanediyl)], 5,5'-oxybis[1,3-benzenedicarbonyl dichloride] and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

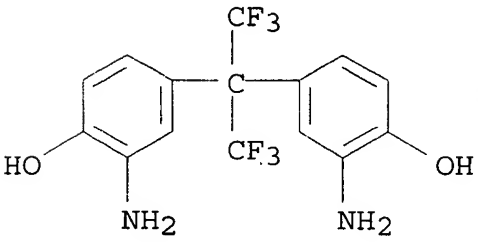
CM 1

CRN 519142-92-8
CMF C16 H6 Cl4 O5



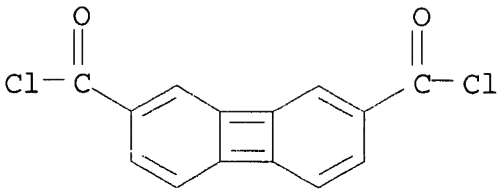
CM 2

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



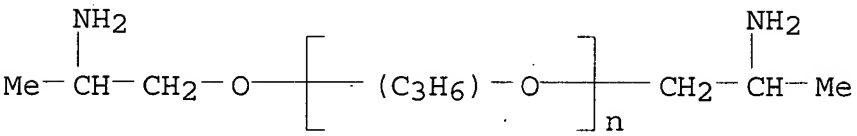
CM 3

CRN 69417-81-8
CMF C14 H6 Cl2 O2



CM 4

CRN 26403-64-5
CMF (C3 H6 O)n C6 H16 N2 O
CCI IDS, PMS



IC ICM C09D177-00
ICS C08G073-22; C08J009-02; C09D005-25; C09D177-06; C09D179-04; H01B003-30; H05K003-28; H05K003-46; C08L079-04

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 25, 35, 37, 42, 76

ST elec insulating porous film polybenzoxazole semiconductor; reactive oligomer polyamide polybenzoxazole porous film; aminobenzoate polystyrene polyamide polybenzoxazole porous film; heat water resistance **dielec** coating polybenzoxazole; multilayer wiring board insulator film polybenzoxazole

IT **Dielectric** films
(heat- and water-resistant; elec. insulating polybenzoxazole films having fine pores prepd. by heating of copolymers from branched polyamides and reactive oligomers for semiconductor devices)

IT Water-resistant materials
(heat-resistant, **dielec**. films; elec. insulating polybenzoxazole films having fine pores prepd. by heating of copolymers from branched polyamides and reactive oligomers for semiconductor devices)

IT Heat-resistant materials
(water-resistant, **dielec**. films; elec. insulating polybenzoxazole films having fine pores prepd. by heating of copolymers from branched polyamides and reactive oligomers for semiconductor devices)

IT 75-21-8DP, Ethylene oxide, reaction products with styrene oligomer, aminobenzoate ester, reaction products with polyamides 150-13-0DP, 4-Aminobenzoic acid, ester with hydroxy-terminated styrene oligomer, reaction products with polyamides 9003-53-6DP, Polystyrene, aminobenzoate-terminated, reaction products with polyamides

519142-88-2DP, reaction products with aminobenzoate-terminated styrene oligomer 519142-89-3P 519142-90-6P 519142-91-7P **519142-93-9P** 519142-94-0P
(thermally decompd., polybenzoxazole; elec. insulating polybenzoxazole films having fine pores prepd. by heating of copolymers from branched polyamides and reactive oligomers for semiconductor devices)

L26 ANSWER 2 OF 8 ZCAPLUS COPYRIGHT 2003 ACS on STN
2002:944773 Document No. 138:14537 Porous **dielectric** films, their manufacture, and resin compositions therefor. Yoshihashi, Ayako; Murayama, Kazumoto; Murata, Mitsuru; Enoki, Naoshi (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002356577 A2 20021213, 26 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-72687 20020315. PRIORITY: JP 2001-74858 20010315; JP 2001-94281 20010328.

AB Varnishes contg. resins or compns. obtained from matrix resins having structures capable of cyclizing and having substituents capable of crosslinking and thermally decomposable oligomers dissolved in org. solvents are formed into films, prebaked at a temp. below the b.p. of the org. solvents and optionally, under inert atm. or vacuum, for removal of a part of the org. solvents, heat-treated at a temp. above the prebaking temp. and below the thermal decompn. temp. of the oligomers under inert atm. or vacuum for cyclization and crosslinking of the matrix resins, and heat-treated at a temp. above the thermal decompn. temp. under inert atm. or vacuum to give the porous **dielec.** films. Thus, 2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane was stirred with 3-phenylethynyl-1,5-naphthalenedicarbonyl dichloride, Et3N, OH-terminated poly(ethylene glycol)-block-poly(propylene glycol)-block poly(ethylene glycol) oligomer (Mn 2800, thermal decompn. temp. 390.degree.) in N-methylpyrrolidone (b.p. 202.degree.)-.gamma.-butyrolactone mixt. to give a copolymer. A varnish contg. the copolymer was applied on an Al-deposited Si wafer, prebaked at 100.degree. for 240 s, heated at 350.degree. for 60 min, and heated at 430.degree. for 60 min for decompn. of the oligomer to give a polybenzoxazole film showing **dielec.** const. (at 1 MHz) 2.28 and av. pore size 15 nm.

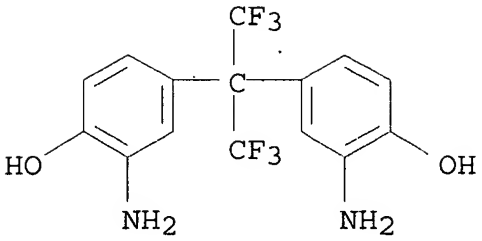
IT **382608-44-8P**, 2,7-Biphenylenedicarbonyl dichloride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane copolymer
(crosslinked; manuf. of porous **dielec.** films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)

RN 382608-44-8 ZCAPLUS

CN 2,7-Biphenylenedicarbonyl dichloride, polymer with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

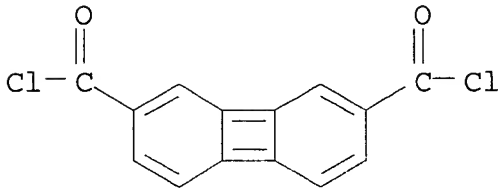
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



CM 2

CRN 69417-81-8
CMF C14 H6 Cl2 O2



IC ICM C08J009-26
ICS C08J009-26; C08G073-06; C08L079-04
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76
ST porous **dielec** film polybenzoxazole oligomer pyrolysis; polyoxyalkylene oligomer pyrolysis porous **dielec** film; cyclization crosslinking polybenzoxazole porous **dielec** film
IT Polyoxyalkylenes, uses
(block, oligomeric; manuf. of porous **dielec**. films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)
IT Polybenzoxazoles
(fluorine-contg.; manuf. of porous **dielec**. films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)
IT Thermal decomposition
(manuf. of porous **dielec**. films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)
IT Polybenzoxazoles
(manuf. of porous **dielec**. films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)
IT Polyoxyalkylenes, uses
(oligomeric; manuf. of porous **dielec**. films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)
IT Fluoropolymers, uses
(polybenzoxazole-; manuf. of porous **dielec**. films

contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)

IT Polyimides, uses
(polyether-; manuf. of porous **dielec**. films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)

IT Polyethers, uses
(polyimide-; manuf. of porous **dielec**. films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)

IT **Dielectric** films
(porous; manuf. of porous **dielec**. films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)

IT Crosslinking
Cyclization
(thermal; manuf. of porous **dielec**. films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)

IT **382608-44-8P**, 2,7-Biphenylenedicarbonyl dichloride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane copolymer 393543-28-7P 477773-43-6P 477773-45-8P 477773-46-9P 477773-47-0P 477773-48-1P 477773-49-2P 477773-50-5P 477790-39-9P
(crosslinked; manuf. of porous **dielec**. films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)

IT 25190-06-1, PTG 2000
(oligomeric; manuf. of porous **dielec**. films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)

IT 106392-12-5, Ethylene oxide-propylene oxide block copolymer
(triblock, oligomeric; manuf. of porous **dielec**. films contg. crosslinked polybenzoxazoles by thermal decompn. of oligomers)

L26 ANSWER 3 OF 8 ZCAPLUS COPYRIGHT 2003 ACS on STN
2002:686571 Document No. 137:218062 Insulation films for semiconductor devices with good heat and moisture resistance and benzoxazole ring-formable polyamide varnishes for their manufacture. Oki, Hiromi; Enoki, Naoshi (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002256146 A2 20020911, 25 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-57435 20010301.

AB The varnishes contain copolymers (C) of (A) polyamides derived from ethynyl group-contg. dicarboxylic acids and other dicarboxylic acids and dihydroxy diamine compds. and (B) oligomers bearing functional groups which can react with functional groups of A, and (D) oligomers (optionally bearing A-reactive groups). Thus, adding 4-ethynyl-2,6-naphthalenedicarboxylic dichloride 27.7 to a dissoln. of 2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane in N-methyl-2-pyrrolidone (330 mL), mixing at 20.degree. for 1 h, cooling to 10.degree., adding triethylamine 22.3 and 4-aminobenzoyl ester-terminated styrene oligomer (B) 38.4 g dissolved in .gamma.-butyrolactone (100 mL), mixing for 1 h, filtering, and dropping into a mixt. of 6.6 L water and 6.6 L i-PrOH gave a copolymer (C). Mixing 30.0 g the C with 4.9 g the B dissolved in 100 mL N-methyl-2-pyrrolidone, filtering, coating the resulting filtrate on a Si wafer and baking gave a porous coat film having polybenzoxazole structure and **dielec**. const. 1.96.

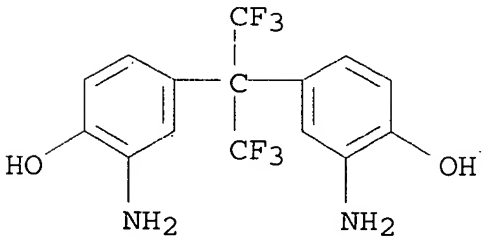
IT **405932-03-8P**
(insulation films for semiconductor devices with good heat and moisture resistance and hydroxy group-contg. polyamide varnishes for manuf.)

RN 405932-03-8 ZCAPLUS

CN 2,7-Biphenylenedicarbonyl dichloride, polymer with .alpha.-(2-aminopropyl)-.omega.-(2-aminopropoxy)poly[oxy(methyl-1,2-ethanediyl)] and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol], block (9CI) (CA INDEX NAME)

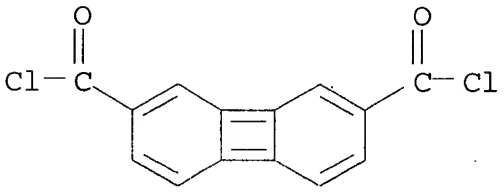
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



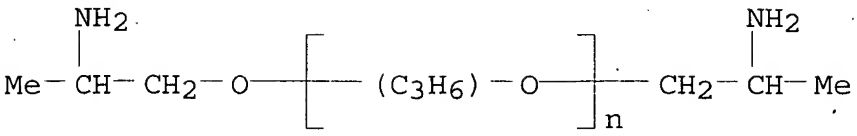
CM 2

CRN 69417-81-8
CMF C14 H6 Cl2 O2



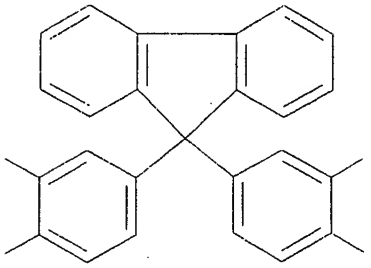
CM 3

CRN 26403-64-5
CMF (C3 H6 O)n C6 H16 N2 O
CCI IDS, PMS



IC ICM C08L077-06
ICS C08G073-22; C09D005-25; C09D177-00; C09D179-04; H01B003-30; H01L021-312
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76
IT **Dielectric** films
Electric insulators
Semiconductor devices
(insulation films for semiconductor devices with good heat and moisture resistance and hydroxy group-contg. polyamide varnishes for manuf.)
IT 405931-95-5P, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-4-ethynyl-2,6-naphthalenedicarboxylic acid dichloride-styrene block copolymer 405931-96-6P, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-ethylene oxide-5-ethynylterephthalic chloride-propylene oxide block copolymer 405932-02-7P, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-5-phenylethynylisophthalic dichloride-polypropylene glycol bis(2-aminopropyl ether) block copolymer **405932-03-8P** 405932-04-9P 405932-06-1P 455281-89-7P, 9,9-Bis[4-[(4-amino-3-hydroxy)phenoxy]phenyl]fluorene-5-ethynylterephthalic chloride-polypropylene glycol bis(2-aminopropyl ether) block copolymer 455281-90-0P
(insulation films for semiconductor devices with good heat and moisture resistance and hydroxy group-contg. polyamide varnishes for manuf.)

L26 ANSWER 4 OF 8 ZCAPLUS COPYRIGHT 2003 ACS on STN
2002:423001 Document No. 137:7182 Heat- and water-resistant polyamide compositions and their porous polybenzoxazole electric insulator films. Oki, Hiromi; Hase, Yoko; Enoki, Naoshi (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002161204 A2 20020604, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-262440 20010830. PRIORITY: JP 2000-263323 20000831.
GI



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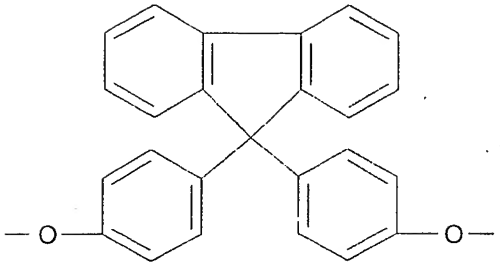
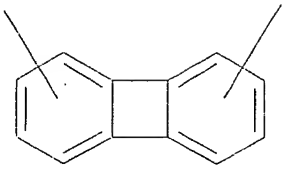


II



III

AB The compns. comprise oligomers and polyamides manufd. from (A) diaminophenols (H2N)2X(OH)2 [X = 1,2,4,5-benzenetetrayl, 2,2',3,3'-biphenyltetrayl, QZQ, I; Q = 1,3,4-benzenetriyl, Z = O, SO2, CMe2, C(CF3)2, phenylene, oxyphenylenoxy, II, etc.], (B) compds. having d-valent org. groups reactive to amino groups of A (d = 3-10), and (C) dicarboxylic acids HO2CYCO2H (Y = III, m-phenylene, p-phenylene, biphenylene, naphthalenediyl, etc.). Thus, 2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane-2,6-biphenylene dicarboxylic acid chloride-isophthaloyl chloride-trimesic acid trichloride copolymer was mixed with polymethyl methacrylate and a solvent, applied on a glass plate, and heated to give a polybenzoxazole film showing pore size .ltoreq.5 nm, **dielec** . const. 2.4, Tg 414.degree., and water absorption 0.2%.

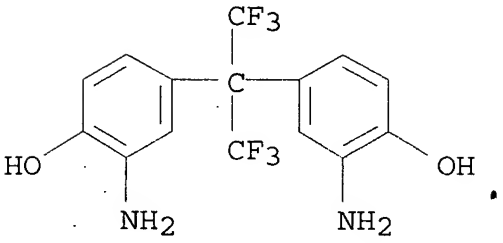
IT **433304-97-3P**, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-2,6-biphenylene dicarboxylic acid chloride-isophthaloyl chloride-trimesic acid trichloride copolymer **433304-99-5P**, 3,3',5,5'-Biphenyltetracarbonyl tetrachloride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane-2,6-biphenylene dicarboxylic acid chloride-isophthaloyl chloride copolymer
(polyamide compns. for heat- and water-resistant porous polybenzoxazole elec. insulator films)

RN 433304-97-3 ZCAPLUS

CN 1,3,5-Benzenetricarbonyl trichloride, polymer with 1,3-benzenedicarbonyl dichloride, 2,6-biphenylenedicarbonyl dichloride and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

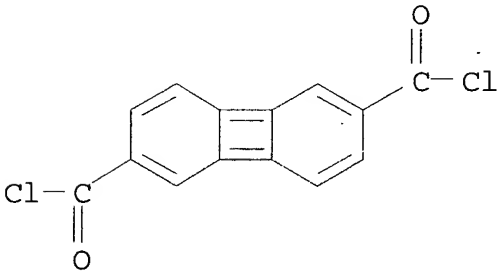
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



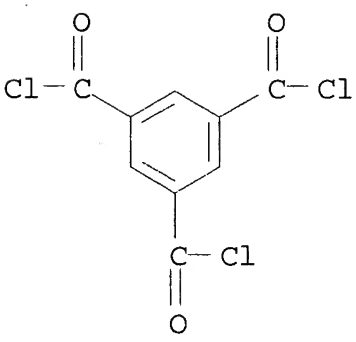
CM 2

CRN 65330-84-9
CMF C14 H6 Cl2 O2



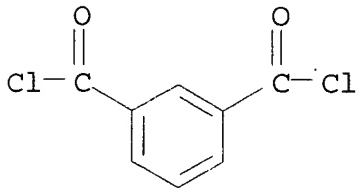
CM 3

CRN 4422-95-1
CMF C9 H3 Cl3 O3



CM 4

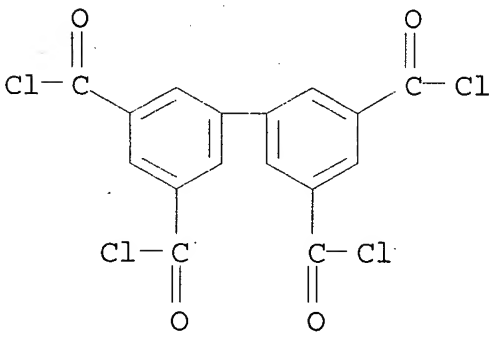
CRN 99-63-8
CMF C8 H4 Cl2 O2



RN 433304-99-5 ZCAPLUS
CN [1,1'-Biphenyl]-3,3',5,5'-tetracarbonyl tetrachloride, polymer with 1,3-benzenedicarbonyl dichloride, 2,6-biphenylenedicarbonyl dichloride and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

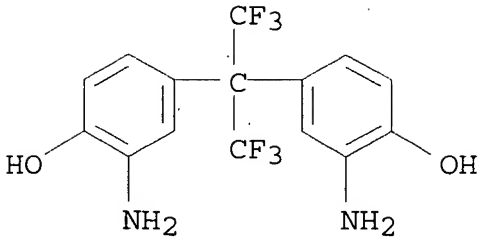
CM 1

CRN 113797-72-1
CMF C16 H6 Cl4 O4



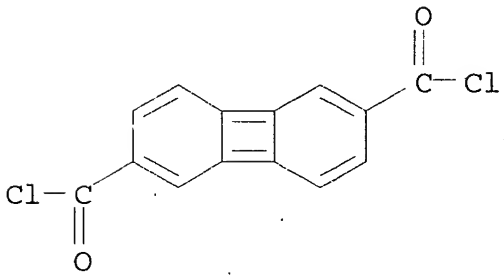
CM 2

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



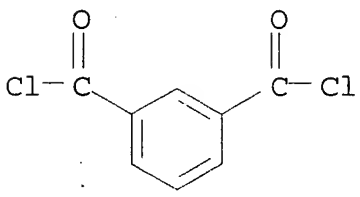
CM 3

CRN 65330-84-9
CMF C14 H6 Cl2 O2



CM 4

CRN 99-63-8
CMF C8 H4 Cl2 O2



IC ICM C08L077-06
ICS C08G069-26; C08G073-22; C08L101-00; C09D005-25; C09D179-04; H01L021-312
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76
IT **Dielectric** films
(polyamide compns. for heat- and water-resistant porous polybenzoxazole elec. insulator films)

IT **433304-97-3P**, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-2,6-biphenylene dicarboxylic acid chloride-isophthaloyl chloride-trimesic acid trichloride copolymer 433304-98-4P, 9,9-Bis[4-(4-amino-3-hydroxyphenoxy)phenyl]fluorene-2,7-biphenylene dicarboxylic acid chloride-trimesic acid trichloride copolymer **433304-99-5P**, 3,3',5,5'-Biphenyltetracarbonyl tetrachloride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane-2,6-biphenylene dicarboxylic acid chloride-isophthaloyl chloride copolymer
(polyamide compns. for heat- and water-resistant porous polybenzoxazole elec. insulator films)

L26 ANSWER 5 OF 8 ZCAPLUS COPYRIGHT 2003 ACS on STN
2002:358893 Document No. 136:370743 Polybenzoxazole compositions, **dielectric** films, their manufacture, and multilayer circuit boards. Cooley, Nawalage Florence (Fujitsu Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002138248 A2 20020514, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-334547 20001101.

AB The compns. contain polybenzoxazoles bearing F and thermosetting end groups. Thus, a soln. contg. benzocyclobutene-2-carbonyl-terminated 1,1,1,3,3,3-hexafluoro-2,2-bis(3-amino-4-hydroxyphenyl)propane-2,2-bis(4-chlorocarboxyphenyl)-1,1,1,3,3,3-hexafluoropropane copolymer was applied on a silicon wafer and heated to give a film showing thermal decompn. starting temp. 420.degree., Tg 360.degree., tensile strength 130 MPa, and **dielec**. const. 2.45 at 1 MHz.

IT **423759-33-5P**
(polybenzoxazole compns. for **dielec**. films for multilayer circuit boards)

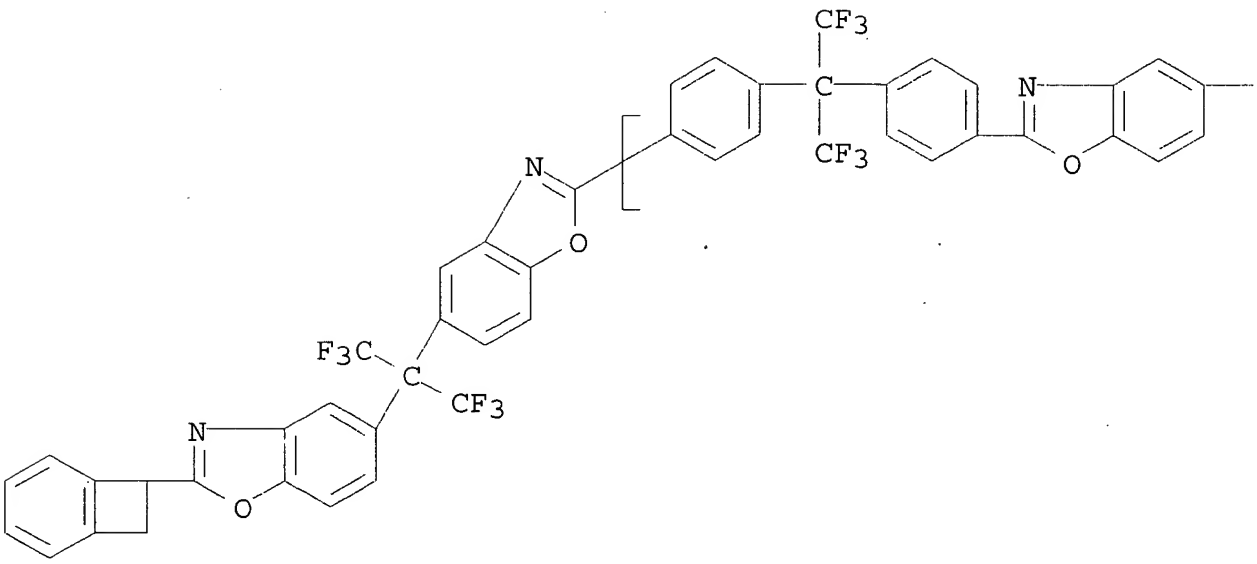
RN 423759-33-5 ZCAPLUS

CN Poly[2,5-benzoxazolediyl[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-5,2-benzoxazolediyl-1,4-phenylene[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-1,4-phenylene], .alpha.-bicyclo[4.2.0]oct-7-yl-.omega.-[5-[1-(2-bicyclo[4.2.0]oct-7-yl-5-benzoxazolyl)-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-benzoxazolyl]-, homopolymer (9CI) (CA INDEX NAME)

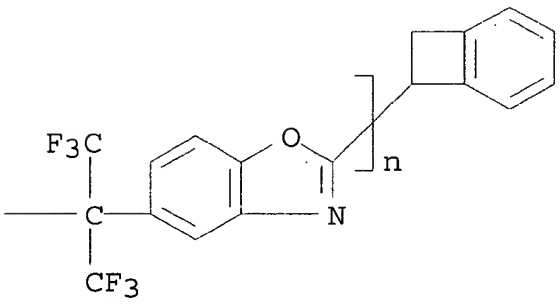
CM 1

CRN 423759-32-4
CMF (C32 H14 F12 N2 O2)n C33 H20 F6 N2 O2
CCI PMS

PAGE 1-A



PAGE 1-B



IC ICM C09D179-04
ICS C08G073-22; C09D005-25; H01B003-30; H05K003-46
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76
ST polybenzoxazole thermosetting resin **dielec** film; multilayer printed circuit board polybenzoxazole; fluorobisaminohydroxyphenylpropane chlorocarboxyphenylfluoropropane copolymer **dielec** film; benzocyclobutene carbonyl terminated polybenzoxazole **dielec** film

IT Printed circuit boards
(multilayer; polybenzoxazole compns. for **dielec**. films for)
IT **Dielectric** films
(polybenzoxazole compns. for **dielec**. films for multilayer circuit boards)
IT Polybenzoxazoles
(polybenzoxazole compns. for **dielec**. films for multilayer circuit boards)
IT 14381-41-0DP, reaction products with F-contg. polybenzoxazoles 112513-26-5DP, 1,1,1,3,3,3-Hexafluoro-2,2-bis(3-amino-4-hydroxyphenyl)propane-2,2-bis(4-chlorocarboxyphenyl)-1,1,1,3,3,3-hexafluoropropane copolymer, reaction products with benzocyclobutenecarboxylic acid chloride, homopolymer
(crosslinked; polybenzoxazole compns. for **dielec**. films for multilayer circuit boards)
IT **423759-33-5P**
(polybenzoxazole compns. for **dielec**. films for multilayer circuit boards)

L26 ANSWER 6 OF 8 ZCAPLUS COPYRIGHT 2003 ACS on STN
2002:240862 Document No. 136:280417 Polyamide-containing material for insulating film, coating varnish for insulating film, and insulating film and semiconductor device using the same. Enoki, Takashi; Saito, Hidenori; Higashida, Nobuhiro; Ishida, Yuichi (Sumitomo Bakelite Company, Ltd., Japan). PCT Int. Appl. WO 2002024788 A1 20020328, 64 pp. DESIGNATED STATES: W: CN, KR, SG, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2001-JP8210 20010920. PRIORITY: JP 2000-288271 20000922; JP 2000-401237 20001228.
AB The invention relates to a material for an insulating film, characterized in that it comprises a copolymer prepd. by reacting a HO-contg. polyamide having a specific structure (e.g., ethynyl) and a reactive oligomer as a film forming component; a coating vanish for an insulating film which comprises the material and an org. solvent; an insulating film, characterized in that it comprises a layer of a resin having polybenzoxazole as a primary structure which is prepd. by heating the material or the coating vanish to allow to undergo a condensation reaction and a crosslinking reaction, and has micropores; and a semiconductor device which has an inter-layer insulating film for multi-layer wiring and/or a surface protecting layer comprising the insulating film. The material for an insulating film is excellent in elec. characteristics, thermal characteristics, mech. characteristics and the like, and also can be used for producing an insulating film having a reduced **dielec**. const. Thus, adding 4-ethynyl-2,6-naphthalenedicarboxylic acid dichloride 27.7 to a soln. of 2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane 35.9 in dry N-methyl-2-pyrrolidone (330 mL) at 10.degree., after 1 h at 10.degree., mixing for 1 h at 20.degree., cooling back to 10.degree., adding Et3N 22.3, .gamma.-butyrolactone (100 mL) and 4-aminobenzoate ester of a OH-terminated styrene oligomer (prepn.

given) 38.4 g, after 1 h at 10.degree., mixing for 1 h at 20.degree. and working up gave a copolymer 5.00 g of which was dissolved in 20.00 g N-methyl-2-pyrrolidone, filtered, coated on an Al-deposited Si wafer and heated initially at 120.degree. for 240 s then at 300.degree. under an atm. contg. <100 ppm O for 60 min, and at 400.degree. for 60 min to decomp. the oligomer unit to give a polybenzoxazole resin film with micro-pores, **dielec.** const. 2.1, and good resistance to heat and moisture.

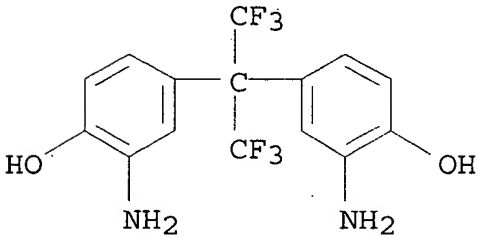
IT **405932-03-8P**
(polyamide-contg. material for insulating film, coating varnish for insulating film, and insulating film and semiconductor device using same)

RN 405932-03-8 ZCAPLUS

CN 2,7-Biphenylenedicarbonyl dichloride, polymer with .alpha.-(2-aminopropyl)-.omega.-(2-aminopropoxy)poly[oxy(methyl-1,2-ethanediyl)] and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol], block (9CI) (CA INDEX NAME)

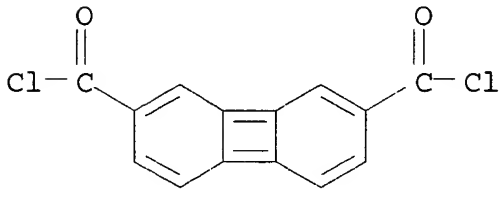
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



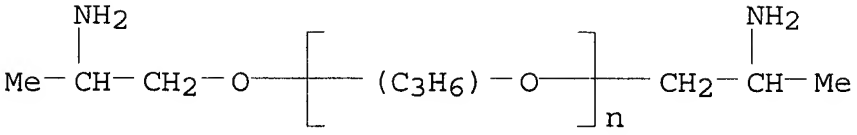
CM 2

CRN 69417-81-8
CMF C14 H6 Cl2 O2



CM 3

CRN 26403-64-5
CMF (C3 H6 O)n C6 H16 N2 O
CCI IDS, PMS



IC ICM C08G081-00
ICS H01L021-312; H01L021-762; H05K003-28; H05K003-46
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 42, 76
ST low k material ethynyl naphthalenedicarboxylic acid polyamide polybenzoxazole compn; semiconductor device **dielec** film polybenzoxazole resin heat moisture resistance; aminobenzoate ester styrene oligomer pore former low k material
IT **Dielectric** films
Heat-resistant materials
Semiconductor devices
Water-resistant materials
(polyamide-contg. material for insulating film, coating varnish for insulating film, and insulating film and semiconductor device using same)
IT 405931-95-5P, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane;4-ethynyl-2,6-naphthalenedicarboxylic acid dichloride;styrene block copolymer 405931-98-8P 405932-00-5P 405932-02-7P
405932-03-8P 405932-04-9P 405932-05-0P 405932-06-1P
405932-07-2P 405932-08-3P 405932-09-4P
(polyamide-contg. material for insulating film, coating varnish for insulating film, and insulating film and semiconductor device using same)

L26 ANSWER 7 OF 8 ZCAPLUS COPYRIGHT 2003 ACS on STN
2001:927390 Document No. 136:54878 Polyamide compositions and their **dielectric** films with excellent heat resistance and water absorption. Yoshida, Tatsuhiro; Okanuma, Masako; Murata, Mitsuru (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001354852 A2 20011225, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-180505 20000615.
AB The compns., useful for interlayer **dielecs**., solder resists, etc., contain polyamides having units [C:ONHX(OH)2NHC:OY]l[C:ONHX(OH)2NHC:OZ]m (X = tetravalent arom. group; Y = divalent biphenylene; Z = divalent arom. group; l >0; m >0; l + m = 2-1000; l/(l + m) = 0.05-1) and oligomers. Thus, a compn. contg. 100 parts 2,6-biphenylenedicarbonyl chloride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane-isophthalic chloride copolymer and 5 parts poly(Me methacrylate) with Mn 5000 was applied on a glass plate and heated to give a film

which have pores with size .ltoreq.5 nm and show sp. **dielec** . const. 2.5, 5% wt. loss temp. 543.degree., glass-transition temp. 405.degree., and H2O absorption 0.2%.

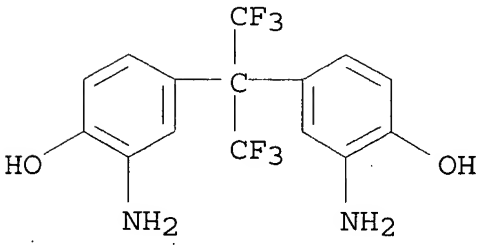
IT **382608-43-7P**, 2,6-Biphenylenedicarbonyl dichloride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane-isophthalic chloride copolymer **382608-44-8P**, 2,7-Biphenylenedicarbonyl dichloride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane copolymer **382608-45-9P**
(crosslinked; polyamide compns. contg. oligomers for **dielec**. porous polybenzoxazole films with good heat resistance and water absorption)

RN 382608-43-7 ZCAPLUS

CN 2,6-Biphenylenedicarbonyl dichloride, polymer with 1,3-benzenedicarbonyl dichloride and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

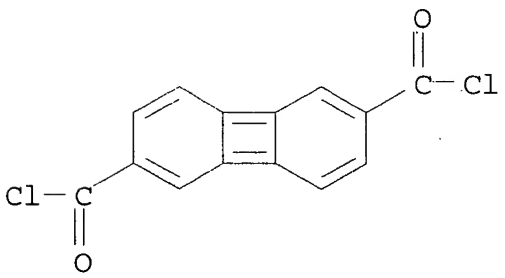
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



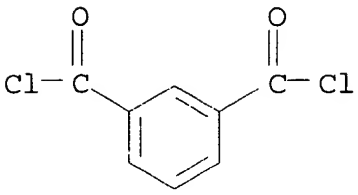
CM 2

CRN 65330-84-9
CMF C14 H6 Cl2 O2



CM 3

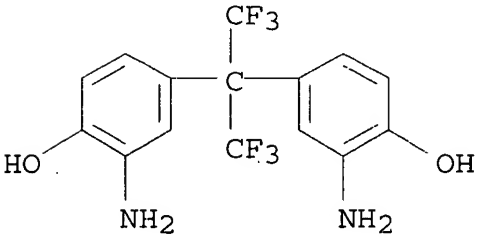
CRN 99-63-8
CMF C8 H4 Cl2 O2



RN 382608-44-8 ZCAPLUS
CN 2,7-Biphenylenedicarbonyl dichloride, polymer with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

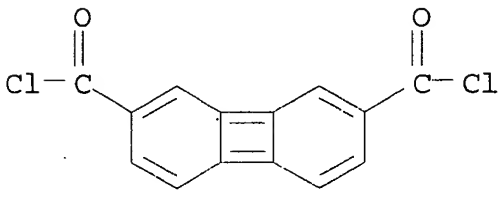
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



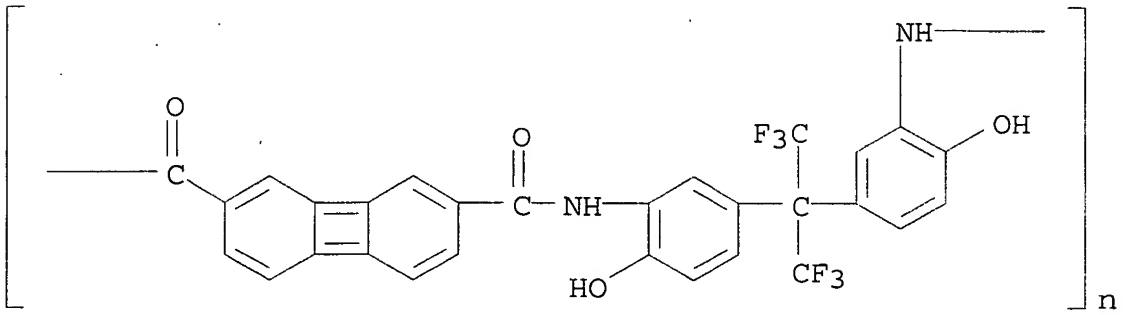
CM 2

CRN 69417-81-8
CMF C14 H6 Cl2 O2



RN 382608-45-9 ZCAPLUS
CN Poly[imino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-

(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)iminocarbonyl-2,7-biphenylenediylcarbonyl] (9CI) (CA INDEX NAME)



IC ICM C08L079-04
ICS C08G073-22; C08J009-04; C08L101-00; H01B003-30; H01L021-312; H01L021-768

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76

ST **dielec** film biphenylene polyamide acrylic oligomer; water absorption polyamide porous film semiconductor; heat resistance polyamide crosslinking polybenzoxazole film

IT Polyamides, uses
(crosslinked; polyamide compns. contg. oligomers for **dielec**. porous polybenzoxazole films with good heat resistance and water absorption)

IT Heat-resistant materials
Porous materials
(films; polyamide compns. contg. oligomers for **dielec**. porous polybenzoxazole films with good heat resistance and water absorption)

IT Films
(heat-resistant; polyamide compns. contg. oligomers for **dielec**. porous polybenzoxazole films with good heat resistance and water absorption)

IT **Dielectric** films
Plastic films
(polyamide compns. contg. oligomers for **dielec**. porous polybenzoxazole films with good heat resistance and water absorption)

IT Polybenzoxazoles
(polyamide compns. contg. oligomers for **dielec**. porous polybenzoxazole films with good heat resistance and water absorption)

IT Polyoxyalkylenes, uses
(polyamide compns. contg. oligomers for **dielec**. porous polybenzoxazole films with good heat resistance and water absorption)

IT Polymer blends
(polyamide compns. contg. oligomers for **dielec**. porous

polybenzoxazole films with good heat resistance and water absorption)

IT Films
(porous; polyamide compns. contg. oligomers for **dielec.** porous polybenzoxazole films with good heat resistance and water absorption)

IT **382608-43-7P**, 2,6-Biphenylenedicarbonyl dichloride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane-isophthalic chloride copolymer **382608-44-8P**, 2,7-Biphenylenedicarbonyl dichloride-2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane copolymer **382608-45-9P**
(crosslinked; polyamide compns. contg. oligomers for **dielec.** porous polybenzoxazole films with good heat resistance and water absorption)

IT 9003-11-6, Ethylene oxide-propylene oxide copolymer 9003-53-6, Polystyrene 9011-14-7, Poly(methyl methacrylate) 25322-69-4
(polyamide compns. contg. oligomers for **dielec.** porous polybenzoxazole films with good heat resistance and water absorption)

L26 ANSWER 8 OF 8 ZCAPLUS COPYRIGHT 2003 ACS on STN

1990:57019 Document No. 112:57019 Polymers prepared from bis[4-[2-(3,4-dicarboxyphenyl)hexafluoroisopropyl]phenyl] ether dianhydride. Mueller, Werner H.; Khanna, Dinesh N.; Vora, Rohithumar H.; Erckel, Ruediger J. (Hoechst Celanese Corp., USA). Eur. Pat. Appl. EP 317943 A2 19890531, 33 pp. DESIGNATED STATES: R: BE, DE, FR, GB, IT, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1988-119370 19881122. PRIORITY: US 1987-124720 19871124.

AB The title dianhydride (I) is used in the prepn. of polymers (i.e., polyimides, polyamides, etc.) which have a low **dielec.** const. as well as good soly., heat and oxidn. resistance, and processability. I was prepd. by the arylation of bis[4-(2-hydroxyhexafluoroisopropyl)phenyl] ether by o-xylene, followed by oxidn. of Me groups to give the tetracarboxy deriv. and dehydration to give the dianhydride. Polymg. I and 2,2-bis(4-aminophenyl)hexafluoropropane gave a polyamic acid which was heated to give a polyimide film with glass temp. 350.degree., 5% wt. loss at 527.degree., and tensile modulus 11,300 psi.

IT **124592-13-8P**
(prepn. and properties of)

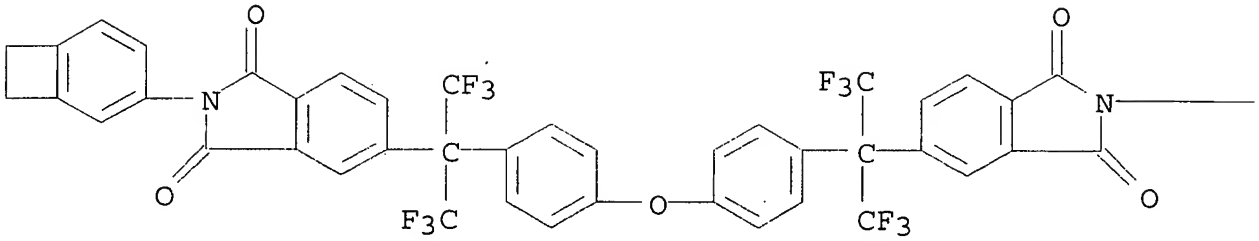
RN 124592-13-8 ZCAPLUS

CN 1H-Isoindole-1,3(2H)-dione, 5,5'-[oxybis[4,1-phenylene[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]]]bis[2-bicyclo[4.2.0]octa-1,3,5-trien-3-yl-, homopolymer (9CI) (CA INDEX NAME)

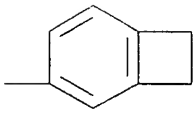
CM 1

CRN 124592-12-7
CMF C50 H28 F12 N2 O5

PAGE 1-A



PAGE 1-B



IC ICM C08G073-10
ICS C08G073-12; C08G059-40; C08G059-50; C08L079-08; C07D209-48; C07D209-94; C07D207-448; C07D207-452; C08K005-34; G03C001-68

CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 25, 27, 37, 38, 74

IT 124431-66-9P 124431-67-0P 124431-68-1P 124431-69-2P
124431-70-5P 124431-71-6P 124431-72-7P 124592-04-7P
124592-06-9P 124592-07-0P 124592-08-1P 124592-09-2P
124592-10-5P 124592-11-6P **124592-13-8P**
(prepn. and properties of)